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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/689,764	10/13/2000	Dan Anders Lindqvist	040020-308	8085

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ERICSSON INC.  
6300 LEGACY DRIVE  
M/S EVR C11  
PLANO, TX 75024

EXAMINER

MERID, ARADOM B

ART UNIT PAPER NUMBER

2641

DATE MAILED: 04/05/2004

9

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/689,764

Applicant(s)

LINDQVIST ET AL.

Examiner

Aradom B. Merid

Art Unit

2631

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 10/13/2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 3,4 and 5.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### 1. *Claim Rejections - 35 USC § 112*

- a) The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1 and 18 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Because claims 1 and 18 recite the phrase "...in accordance with **certain criteria's**..." which is not clearly described in the specification in evaluating digital samples.

Claims 2-17 and 19-24 are inherently rejected because they are dependent on the rejected base claim 1 and 18 respectively.

Claims 13 and 23 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The recitation of the phrase "...by evaluating a pre-determined number of said digital samples..." in claims 13 and 23 is not clearly described in the

specification. The specification fails to describe how to evaluate "the pre-determined number of said digital samples" in such away to enable one skilled in the art to make and/or use the invention.

b) The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 1 is rejected under 35. U.S.C. 112 second paragraph because claim 1 recites the limitation "said selected sampled signal burst" . There is insufficient antecedent basis for this limitation in the claim.

Claim 5 is rejected under 35. U.S.C. 112 second paragraph because the word "essentially" renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

**2. Claim Rejections - 35 USC § 102**

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-6, 18 and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by over Shovlin et al. ,U.S. Patent No. 4,652,882 of record (hereinafter Shovlin).

As to claim 1 and 18, Shovlin teaches a receiver with two signal receiver channels (or branches) in parallel having an overlapping dynamic range of operation for receiving signals with a wide dynamic range without distortion. (abstract, col.4, line55-col.6, line 14, Fig. 2b and Fig.4)

Shovlin also teaches converting the analog signals from the two channels to digital signals by the analog to digital converters(93a, and 93b) and producing digital word indicative of the amplitude of the analog signal in time multiplexed signals, which implies producing or evaluating sampled digital data that corresponds to the analog signal. Selecting the digital samples indicative of the amplitude of each component of the analog signal by a selecting means (abstract, col. 5, lines 40-65, col. 8, lines 19-24, and col. 8, lines 38-44).

As to claim 2 and 19, Shovlin teaches a selection means for selecting digital samples indicative of the analog signal which has been received in parallel by the two branches.( abstract and Fig.2).

As to claim 3 and 4, Shovlin discusses having an attenuation means to attenuate incoming signal in at least one of the two branches attaining partly an overlapping dynamic range, which means the attenuated signal minimum range is within the detectable dynamic range ( abstract, col. 4, lines 30-44, col. 4, line 55 - col.6, line 14 , Fig. 2b and Fig. 4).

As to claim 5 Shovlin discloses a receiver with two branches wherein the second branch of the receiver has no signal attenuators.

As to claim 6, it is inherently known in the art that attenuators include a resistor network.

**3. Claim Rejections - 35 USC § 103**

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shovlin in view of Rivera et al., U.S. Patent No. 5,111,202 of record (hereinafter Rivera).

As to claims 7 and 8 Shovlin discloses a receiver with two receiver branches with at least one branch comprising an attenuation means, but fails to disclose amplifying the attenuated digital sampled signal.

Rivera, however, discloses digitally amplifying the attenuated signal by the same factor as the attenuation performed (col.5, lines 12-20).

Since Shovlin and Rivera discuss analogous art in the same field of endeavor of extending dynamic range of a receiver, it would have been obvious to one of an ordinary skill in the art to implement Rivera's teaching of digitally amplifying the attenuated signal in Shovlin's claimed invention in order to compensate or amplify digitally the attenuated signal to have a more accurate information of the input signal received.

Claims 9 –14, 20- 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shovlin in view of Wilson et al., U.S. Patent No. 5,617,060 of record (hereinafter Wilson).

As to claim 9, Shovlin discloses a receiver with at two channels comprising two analog to digital conversion means **93a**, and **93b** (Fig. 2A) and demodulation means that comprises an oscillator **85** and mixers **83a** and **83b** for down conversion of the input frequency to a desired frequency (Fig. 2A and col.

4, lines 47-50). But Shovlin fails to disclose the implementation of a demodulation means and digital filters.

Wilson, however, discloses the implementation of digital filter **150** for filtering the digital samples outputted by the analog to digital converters (Fig.7, col. 11, line 66 – col. 12, line 9).

Since Shovlin and Wilson discuss analogous art in the same field of endeavor of extending dynamic range of a receiver, it would have been obvious to one of an ordinary skill in the art to implement Wilson's teaching of digital filtering in both channels of Shovlin's claimed invention in order to filter the digital samples outputted by the digital to analog converters with less volume size than a corresponding arrangement of discrete resistive and capacitive component analog filter (**93a**, and **93b**).

As to claim 10-14, 20 - 24, Shovlin discloses evaluating sampled digital data that corresponds to the analog signal and selecting the digital samples indicative of the amplitude of each component of the analog signal by a selecting means (see discussion above in rejecting claim1). But Shovlin fails to teach a means for storing the digital samples, means for selecting stored samples based on signal quality comparing the signal strength of the digital samples with a set of pre-determined threshold levels and transforming the analog signal to a pair of I/Q digital signals .

Wilson, however, discloses a receiver which transforms the analog signal in a pair of I/Q (Fig.7) digital signals that comprises digital RSSI detector with a



look-up table (memory) that contains values of the digital samples (col. 11, lines 9-11) and compares the stored RSSI, which also indicates signal quality with a set of pre-defined threshold levels, with AGC\_REF, AGC\_LOW and AGC\_HIGH, to select digital samples with better signal quality and/or signal strength of the digital samples (col. 6, lines 20-30).

Since Shovlin and Wilson discuss analogous art in the same field of endeavor of extending dynamic range of a receiver, it would have been obvious a person with an ordinary skill in the art to implement Wilson's teachings in the claimed invention in order to produce digital samples that are more accurate representation of the input signal with out amplitude distortion.

Claims 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shovlin.

Shovlin as discussed above discloses a receiver with two signal receiver channels (or branches) in parallel having an overlapping dynamic range of operation for receiving signals with a wide dynamic range without distortion. (abstract, col.4, line55-col.6, line 14, Fig. 2b and Fig.4).

It would have been obvious to an ordinary person skilled in the art to utilize the above mentioned receiver as a separate unit or as an integrated unit together with a transmitter, i.e. a transceiver, a radio unit, and/ or a base transceiver station in order to accommodate signals which experience rapid and wide variations in signal power in wireless environment.

**4. Conclusion**

The following references also have relevance to the claimed invention.

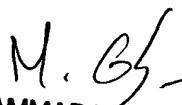
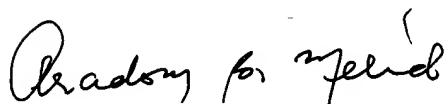
Shovlin et al.	U.S. Patent Number: 4,652,882
Rich et al.	U.S. Patent Number: 5,187,809
Riordan	U.S. Patent Number: 5,184,349
Lavoie	U.S. Patent Number: 6,191,725
Anderson et al.	U.S. Patent Number: 6,646,505
Younis et al.	U.S. Patent Number: 6,134,430
Wilson et al.	U.S. Patent Number: 5,617,060
Chu et al.	U.S. Patent Number : 5,422,643
Tomoe	U.S. Patent Number: 6,167,244
Hsiung et al.	U.S. Patent Number: 4,933,641
Rivera et al.	U.S. Patent Number: 5,111,202
Oberhammer et al.	U.S. Patent Number: 6,031,478

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aradom B. Merid whose telephone number is 703-305-8953. The examiner can normally be reached on 8:00am-5:00pm (Mon. - Fri.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on 703-306-3034. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Aradom B. Merid

  
**MOHAMMAD H. GHAYOUR**  
**PRIMARY EXAMINER**